

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of:)	
)	
Amendment of Parts 2 and 15)	
of the Commission's Rules to Permit)	ET Docket 94-124
Use of Radio Frequencies Above 40 GHz)	RM-8308
For New Radio Applications)	

REPLY COMMENTS OF FORD MOTOR COMPANY

Ford Motor Company ("Ford"), by its attorneys, hereby submits its reply to comments filed in the above-captioned docket.¹ As discussed below, Ford strongly supports the Commission's proposal to move forward with allocating spectrum for vehicular radar collision avoidance systems, which hold great promise for saving lives and decreasing the risk of injury due to automobile accidents on the nation's highways. However, given the anticipated public safety benefits of vehicular radar systems and the importance of minimizing operational disruptions due to interference from unforeseen and potentially much higher powered sources, Ford opposes the proposal of the American Radio Relay League, Inc. ("ARRL") to permit continued use of the 76-77 GHz vehicular radar band by amateurs.² In addition, Ford also seeks to clarify a proposal by General Motors Corporation

¹ Amendment of Parts 2 and 15 of the Commission's Rules to Permit Use of Radio Frequencies Above 40 GHz For New Radio Applications, 9 FCC Rcd 7078 (1994) ["Notice"].

² Comments of the American Radio Relay League, Inc., ET Docket No. 94-124 (filed Jan. 30, 1995) ["ARRL Comments"] at 3-7.

("GM")³ regarding "in motion" interlocks so that it does not inadvertently limit by rule the technology available to manufacturers for vehicular radar.

In the *Notice*, the Commission proposes to allocate a number of frequency bands above 40 GHz for vehicle collision avoidance radar systems. One of these bands, the 76-77 MHz band, is currently part of a larger 5 GHz band -- from 76-81 GHz -- which currently is designated on a secondary basis for amateur operation. In its comments, ARRL argues that amateur use of the 76-77 GHz band should not be precluded in the future by assuming that "the Commission does not intend that amateurs have to protect vehicular radar systems from interference."⁴ To insure proper operation of vehicular radar systems, it is very important that interference from other sources be minimized. Given the anticipated public safety benefits of vehicle collision avoidance systems -- and ARRL's statement that "[p]rotection of vehicular radar systems by amateurs would be impossible in any case"⁵ -- Ford believes that no further amateur use of the 76-77 GHz band should be permitted.

Allocation of 76-77 GHz for vehicular radar systems achieves a vital public interest goal -- promoting the safety of life and health of automobile drivers and passengers -- without affecting the availability of millimeter spectrum for amateur experimentation. As the Commission itself notes, the "technology envisioned [is] a key feature of the Intelligent

³ Comments of General Motors Corporation, ET Docket 94-124 (filed Jan. 30, 1995) ["GM Comments"] at 32-36.

⁴ *ARRL Comments* at 5. Contrary to ARRL's assumption, the FCC has in fact stated its belief that the "band is not currently used by amateur operators" and its intent to "not propos[e] any other new uses [of the band]," which strongly implies that future amateur use of the band was not intended. *Notice*, 9 FCC Rcd at 7079 n.5, 7091.

⁵ *ARRL Comments* at n.2.

Vehicle Highway System, which is intended to offer significant benefits to the American public by improving highway safety, [and] merits special consideration."⁶ ARRL itself also notes that "[u]se of the millimeter-wave bands for vehicular, especially anti-collision radar and similar applications, is . . . in the public interest."⁷

On balance, restricting amateur operations to 4 GHz from 77-81 GHz rather than 5 GHz from 76-81 GHz does not appear onerous. While ARRL argues strenuously that GM has "incorrectly claimed that 'the band (76-77 GHz) is not currently used by amateur operators,'"⁸ ARRL itself concedes "that amateur use of the 76-77 GHz band is not significant at the present time."⁹ Indeed, "[ARRL] has insufficient information about the level of amateur experimentation ongoing presently in the 76-81 GHz band."¹⁰ Under the circumstances, restricting amateur use to 77-81 GHz rather than 76-81 GHz would not appear to have any detrimental impact on existing amateur operations.

Ford is not fundamentally opposed to reopening the band for amateur sharing in the future if such operations appear feasible and capacity for amateur operations in the 77-81 GHz band is exhausted. At the same time, if sharing is ultimately found to be infeasible and potential dangers to life and safety found to exist due to amateur operations, relocating

⁶ *Notice*, 9 FCC Rcd 7090-91.

⁷ *ARRL Comments* at 2.

⁸ *Id.* at 3.

⁹ *Id.* at 4.

¹⁰ *Id.* at 3. Since ARRL cannot document *any* use of the 76-77 GHz band, the principal debate is reduced to whether amateur use of the band is "nonexistent" or merely "insignificant." Neither usage level appears to implicate significant public interest concerns.

amateur operations *ex post facto* would be exceedingly onerous, if possible at all. From a spectrum management perspective, it thus appears far more prudent to restrict amateur operations while the ramifications are negligible rather than to steer a course fraught with potentially hazardous or expensive consequences. Under the circumstances, Ford strongly urges the Commission to allocate 76-77 GHz on an exclusive basis for vehicular collision avoidance systems.¹¹

Ford also believes that GM's proposal for interlocks that would permit vehicular radars to operate at higher powers while "in motion" have practical benefits for forward looking radar.¹² Ford understands, however, that GM has now conceded that such technology should not be required by rule. As an initial matter, although the use of a motion interlock for a forward looking radar system is unlikely to affect the overall safety of a vehicular radar system, requiring "in motion" interlocks would defeat the purpose of rear and side looking vehicular radars by failing to alert drivers to potential collisions while at rest.¹³ Thus, while "in motion" interlocks beneficially limit the exposure of bystanders to forward looking radar while an automobile is at rest, interlocks should not be considered the exclusive means for ensuring compliance with ANSI/IEEE electromagnetic energy ("EME") standards and other potential compliance strategies should not be precluded. Instead,

¹¹ If the Commission believes that implementing an exclusive use plan would require a further public notice, Ford urges the Commission to adopt such a notice expeditiously.

¹² *GM Comments* at 32-36.

¹³ Indeed, GM itself notes that an "in motion" interlock for forward radar must be carefully implemented to ensure that sufficient detection capability exists to track "red light runners." *Id.* at 34.

manufacturers should be allowed sufficient technical flexibility to determine how best to meet the applicable EME limitations.

In conclusion, Ford strongly supports the allocation of spectrum above 40 GHz for vehicular collision avoidance systems that will increase the safety of the nation's highways. Ford believes, however, that given the importance of such public safety uses, other potentially interfering applications, such as amateur radio, should not be permitted even on a secondary basis in vehicular radar bands. Furthermore, while compliance with EME emissions guidelines is essential, the Commission should not adopt a specific rule-based strategy for ensuring compliance that would limit the potential technology available for vehicle collision avoidance systems.

Respectfully submitted,

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